```
FILE 'USPAT' ENTERED AT 12:00:49 ON 03 DEC 1998
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*        W E L C O M E   T O   T H E          *
*    U. S.   P A T E N T   T E X T   F I L E      *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
=> s herpes?
L1      6274 HERPES?
=> s essential
L2    313708 ESSENTIAL
=> s l1(p)l2
L3       265 L1(P)L2
=> s l1(5a)l2
L4        55 L1(5A)L2
=> d 1-55
```

1. 5,840,574, Nov. 24, 1998, Viral vaccines; Louis Joseph Norman Ross, et al., 435/320.1; 536/23.72 [IMAGE AVAILABLE]

2. 5,808,036, Sep. 15, 1998, Stem-loop oligonucleotides containing parallel and antiparallel binding domains; Eric T. Kool, 536/24.3; 435/6, 320.1, 325, 375; 536/23.1, 24.5 [IMAGE AVAILABLE]

3. 5,804,413, Sep. 8, 1998, Herpes simplex virus strains for gene transfer; Neal A. DeLuca, 435/69.1, 235.1, 320.1, 364, 456, 463 [IMAGE AVAILABLE]

4. 5,804,372, Sep. 8, 1998, Method of distinguishing an IBRV-vaccinated bovine from a bovine infected with a wild type virus; Mark D. Cochran, et al., 435/5; 424/229.1; 435/7.1 [IMAGE AVAILABLE]

5. 5,789,388, Aug. 4, 1998, Vaccine against viruses associated with antibody-dependent-enhancement of viral infectivity; Nicolaas Visser, et al., 514/44; 424/93.1, 93.2, 199.1; 435/320.1, 325 [IMAGE AVAILABLE]

6. 5,783,599, Jul. 21, 1998, Methods of treating cancer and viral infections with 5-iodo-6-amino-and 5-iodo-6-nitroso-1 2-benzopyrones; Ernest Kun, et al., 514/457 [IMAGE AVAILABLE]

7. 5,783,195, Jul. 21, 1998, Recombinant infectious bovine rhinotracheitis virus S-IBR-052 and uses thereof; Mark D. Cochran, et al., 424/229.1; 435/235.1, 236 [IMAGE AVAILABLE]

8. 5,763,217, Jun. 9, 1998, Method of using, process of preparing and composition comprising recombinant herpesvirus vectors; Max Cynader, et al., 435/69.1, 320.1, 325, 456; 536/23.1, 24.1 [IMAGE AVAILABLE]

9. 5,744,143, Apr. 28, 1998, Viral vaccines; Louis Joseph Norman Ross, et al., 424/229.1; 435/320.1; 514/44; 536/23.72 [IMAGE AVAILABLE]

10. 5,741,696, Apr. 21, 1998, Recombinant equine herpesviruses; Mark D. Cochran, et al., 435/235.1, 236, 320.1 [IMAGE AVAILABLE]

11. 5,736,319, Apr. 7, 1998, Attenuated gentically-engineered pseudorabies virus S-PRV-155 and uses thereof; Mark D. Cochran, 435/5, 7.1, 7.2 [IMAGE AVAILABLE]

12. 5,731,188, Mar. 24, 1998, Recombinant equine herpesviruses; Mark D. Cochran, et al., 435/235.1, 320.1 [IMAGE AVAILABLE]

13. 5,728,379, Mar. 17, 1998, Tumor- or cell-specific herpes simplex virus replication; Robert L. Martuza, et al., 424/93.2; 435/320.1, 456 [IMAGE AVAILABLE]

14. 5,688,920, Nov. 18, 1997, Nucleotide and amino acid sequences for canine herpesvirus GB, GC and GD and uses therefor; Enzo Paoletti, et al., 530/395; 424/184.1, 199.1, 229.1, 232.1; 435/69.1, 69.3, 235.1, 236, 237, 320.1; 530/350, 403 [IMAGE AVAILABLE]

15. 5,686,076, Nov. 11, 1997, gD-negative bovine herpesvirus mutant, capable of direct cell-to-cell transmission; Gunther Keil, 424/199.1, 202.1, 229.1; 435/235.1; 536/23.72 [IMAGE AVAILABLE]

16. 5,683,874, Nov. 4, 1997, Single-stranded circular oligonucleotides capable of forming a triplex with a target sequence; Eric T. Kool, 435/6; 514/44; 536/23.1, 24.3, 24.5 [IMAGE AVAILABLE]

17. 5,676,952, Oct. 14, 1997, Herpesviruses transformed to express GD in vitro; Jean-Christophe Francis Audonnet, et al., 424/229.1, 202.1, 204.1, 816; 435/235.1, 320.1 [IMAGE AVAILABLE]

18. 5,674,735, Oct. 7, 1997, DNA encoding the EHV-4 gH or gC glycoprotein; David Edward Onions, et al., 435/252.3, 69.3, 252.33, 254.11, 254.2, 320.1; 536/23.72 [IMAGE AVAILABLE]

19. 5,674,683, Oct. 7, 1997, Stem-loop and circular oligonucleotides and method of using; Eric T. Kool, 435/6; 536/23.1, 24.3, 24.31, 24.32, 24.33 [IMAGE AVAILABLE]

20. 5,658,724, Aug. 19, 1997, Herpes simplex virus strains deficient for the essential immediate early genes ICP4 and ICP27 and methods for their production, growth and use; Neal A. DeLuca, 435/5, 235.1, 236, 320.1, 325, 364, 465 [IMAGE AVAILABLE]

21. 5,626,850, May 6, 1997, Non-shedding live herpesvirus vaccine;

Nicolaas Visser, et al., 424/199.1, 93.21, 205.1, 229.1; 435/235.1 [IMAGE AVAILABLE]

22. 5,612,487, Mar. 18, 1997, Anti-viral vaccines expressed in plants; Dominic Man-Kit Lam, et al., 800/288; 435/69.3, 70.1, 469, 470; 800/292, 317.3 [IMAGE AVAILABLE]

23. 5,601,974, Feb. 11, 1997, Method of detecting viral infection in vaccinated animals; Leonard E. Post, et al., 435/5; 424/93.2; 435/7.1, 7.92 [IMAGE AVAILABLE]

24. 5,599,544, Feb. 4, 1997, Recombinant infectious bovine rhinotracheitis virus; Mark D. Cochran, et al., 424/229.1; 435/235.1 [IMAGE AVAILABLE]

25. 5,593,873, Jan. 14, 1997, Recombinant infectious bovine rhinotracheitis virus; Mark D. Cochran, et al., 435/235.1, 320.1 [IMAGE AVAILABLE]

26. 5,591,720, Jan. 7, 1997, Oligonucleotides for modulating the effects of cytomegalovirus infections; Kevin P. Anderson, et al., 514/44; 536/24.5 [IMAGE AVAILABLE]

27. 5,585,096, Dec. 17, 1996, Replication-competent herpes simplex virus mediates destruction of neoplastic cells; Robert L. Martuza, et al., 424/93.2, 205.1, 229.1; 435/235.1, 236, 320.1, 463 [IMAGE AVAILABLE]

28. 5,583,155, Dec. 10, 1996, 6-amino-1,2-benzopyrones useful for treatment of viral diseases; Ernest Kun, et al., 514/457, 456 [IMAGE AVAILABLE]

29. 5,558,860, Sep. 24, 1996, Viral vaccines; Louis J. N. Ross, et al., 424/93.2, 93.21; 435/235.1, 320.1 [IMAGE AVAILABLE]

30. 5,529,780, Jun. 25, 1996, Nucleotide and amino acid sequences of canine herpesvirus gB and gC; Enzo Paoletti, et al., 424/199.1, 184.1, 229.1, 232.1; 435/69.1, 69.3, 235.1, 236, 237, 320.1, 456; 536/23.72, 24.1 [IMAGE AVAILABLE]

31. 5,519,053, May 21, 1996, 5-Iodo-6-amino-1,2-Benzopyrones and their metabolites useful as cytostatic agents; Ernest Kun, et al., 514/457, 934 [IMAGE AVAILABLE]

32. 5,514,546, May 7, 1996, Stem-loop oligonucleotides containing parallel and antiparallel binding domains; Eric T. Kool, 435/6; 536/23.1, 24.3 [IMAGE AVAILABLE]

33. 5,484,719, Jan. 16, 1996, Vaccines produced and administered through edible plants; Dominic M. Lam, et al., 800/292; 435/69.3, 320.1; 800/293 [IMAGE AVAILABLE]

34. 5,482,713, Jan. 9, 1996, Equine herpesvirus recombinant poxvirus vaccine; Enzo Paoletti, 424/199.1, 186.1, 229.1; 435/235.1 [IMAGE AVAILABLE]

35. 5,478,727, Dec. 26, 1995, Methods and compositions for the preparation and use of a herpes protease; Bernard Roizman, et al., 435/23, 5, 219, 235.1 [IMAGE AVAILABLE]

36. 5,451,499, Sep. 19, 1995, Attenuated, genetically-engineered pseudorabies virus S-PRV-155 and uses thereof; Mark D. Cochran, 435/5; 424/205.1, 229.1; 435/7.1, 235.1 [IMAGE AVAILABLE]

37. 5,442,049, Aug. 15, 1995, Oligonucleotides for modulating the effects of cytomegalovirus infections; Kevin Anderson, et al., 536/24.5 [IMAGE AVAILABLE]

38. 5,434,074, Jul. 18, 1995, Cytomegalovirus proteinase; D. Wade Gibson, et al., 435/219, 235.1; 530/826 [IMAGE AVAILABLE]

39. 5,426,180, Jun. 20, 1995, Methods of making single-stranded circular oligonucleotides; Eric T. Kool, 536/25.3, 24.3, 24.31, 24.32, 24.5 [IMAGE AVAILABLE]

40. 5,338,683, Aug. 16, 1994, Vaccinia virus containing DNA sequences encoding herpesvirus glycoproteins; Enzo Paoletti, 435/235.1, 320.1 [IMAGE AVAILABLE]

41. 5,310,671, May 10, 1994, Fowlpox virus non-essential regions; Matthew M. Binns, et al., 435/235.1, 320.1, 348; 536/23.72, 24.2 [IMAGE AVAILABLE]

42. 5,292,653, Mar. 8, 1994, Equine herpesvirus 1 tk mutants; Malon Kit, et al., 435/235.1, 320.1 [IMAGE AVAILABLE]

43. 5,275,934, Jan. 4, 1994, Method of detecting viral infection in vaccinated animals; Leonard E. Post, et al., 435/5; 424/205.1, 229.1; 435/7.1, 7.92 [IMAGE AVAILABLE]

44. 5,266,489, Nov. 30, 1993, Recombinant herpesviruses, in particular for the production of vaccines, process for preparing them, plasmids produced during this process and vaccines obtained; Arielle Rey-Senelonge, et al., 435/320.1; 424/199.1, 229.1; 435/69.1, 69.3, 235.1, 463, 465; 536/23.72 [IMAGE AVAILABLE]

45. 5,128,128, Jul. 7, 1992, Virus vaccine; Leonard E. Post, et al., 424/199.1, 205.1, 229.1, 822 [IMAGE AVAILABLE]

46. 5,110,799, May 5, 1992, Antiherpetic agents; Richard L. Tolman, et al., 514/19; 548/311.4, 312.1, 312.7, 314.7, 315.1, 338.1, 339.1 [IMAGE AVAILABLE]

47. 5,087,638, Feb. 11, 1992, Benzofuran derivatives; Patrice C. Belanger, et al., 514/456, 826, 886; 549/220, 467, 469, 471 [IMAGE AVAILABLE]

48. 5,047,237, Sep. 10, 1991, Attenuated pseudorabies virus having a deletion of at least a portion of a gene encoding an antigenic, nonessential protein, vaccine containing same and methods of identifying animals vaccinated with the vaccine; Mark D. Cochran, 424/205.1, 229.1; 435/236; 436/518 [IMAGE AVAILABLE]

49. 4,998,920, Mar. 12, 1991, Protective assembly for hypodermic syringe devices; Delores Johnson, 604/198, 263 [IMAGE AVAILABLE]

50. 4,912,131, Mar. 27, 1990, 4,7-diacyloxybenzofuran derivatives; Julian Adams, et al., 514/464, 320, 422, 452, 456, 469, 470; 546/196; 548/525; 549/362, 398, 435, 466, 467, 470 [IMAGE AVAILABLE]

51. 4,863,958, Sep. 5, 1989, Benzofuran derivatives useful as inhibitors of mammalian leukotriene biosynthesis; Patrice C. Belanger, et al., 514/469; 549/469, 470, 471; 987/60 [IMAGE AVAILABLE]

52. 4,810,634, Mar. 7, 1989, Pseudorabies virus mutants incapable of producing glycoprotein X; Leonard E. Post, et al., 435/235.1; 424/205.1, 229.1; 530/826 [IMAGE AVAILABLE]

53. 4,800,228, Jan. 24, 1989, 4,7-diacetoxy-2-(4-methoxybenzyl)-3,5,6-trimethylbenzofuran; Julian Adams, et al., 549/470; 546/196; 548/525; 549/362, 398, 435, 466, 467, 469 [IMAGE AVAILABLE]

54. 4,778,805, Oct. 18, 1988, 4,7-benzofurandione derivatives useful as inhibitors of leukotriene synthesis; Julian Adams, et al., 514/320, 422, 452, 456, 464, 469, 470; 546/196; 548/525; 549/362, 398, 435, 466, 467, 468, 469, 470 [IMAGE AVAILABLE]

55. 4,728,735, Mar. 1, 1988, 10,11-dihydro-dibenzo-[b,f][1,4]-thiazepin derivatives; Patrice C. Belanger, et al., 540/488, 547 [IMAGE AVAILABLE]
=> s icp27
L5 17 ICP27
=> d 1-17

1. 5,837,532, Nov. 17, 1998, Herpes simplex cirus type 1 mutant; Christopher Maurice Preston, et al., 435/320.1; 536/23.2, 23.72 [IMAGE AVAILABLE]

2. 5,821,339, Oct. 13, 1998, Compositions and methods for treatment of herpesvirus infections; Priscilla A. Schaffer, et al., 530/387.9; 435/5; 530/355 [IMAGE AVAILABLE]

3. 5,804,413, Sep. 8, 1998, Herpes simplex virus strains for gene transfer; Neal A. DeLuca, 435/69.1, 235.1, 320.1, 364, 456, 463 [IMAGE AVAILABLE]

4. 5,795,778, Aug. 18, 1998, Method and reagent for inhibiting herpes simplex virus replication; Kenneth G. Draper, 435/326, 236, 320.1; 514/44; 536/23.1 [IMAGE AVAILABLE]

5. 5,795,721, Aug. 18, 1998, High affinity nucleic acid ligands of ICP4; Ross S. Rabin, et al., 435/6, 91.1, 91.2; 436/501; 536/23.1 [IMAGE AVAILABLE]

6. 5,776,468, Jul. 7, 1998, Vaccine compositions containing 3-0 deacylated monophosphoryl lipid A; Pierre Hauser, et al., 424/226.1, 192.1, 202.1, 282.1 [IMAGE AVAILABLE]

7. 5,750,398, May 12, 1998, Vector, element and method for inhibiting immune recognition; David C. Johnson, et al., 435/375; 424/199.1; 435/69.1, 91.1, 320.1, 325, 377, 465; 514/44 [IMAGE AVAILABLE]

8. 5,750,110, May 12, 1998, Vaccine composition containing adjuvants; John Paul Prieels, et al., 424/208.1, 184.1, 188.1, 204.1 [IMAGE AVAILABLE]

9. 5,728,379, Mar. 17, 1998, Tumor- or cell-specific herpes simplex virus replication; Robert L. Martuza, et al., 424/93.2; 435/320.1, 456 [IMAGE AVAILABLE]

10. 5,698,431, Dec. 16, 1997, Herpes simplex virus mutant UL41NHB; David A. Leib, 435/236, 235.1, 948 [IMAGE AVAILABLE]

11. 5,658,724, Aug. 19, 1997, Herpes simplex virus strains deficient for the essential immediate early genes ICP4 and **ICP27** and methods for their production, growth and use; Neal A. DeLuca, 435/5, 235.1, 236, 320.1, 325, 364, 465 [IMAGE AVAILABLE]

12. 5,525,468, Jun. 11, 1996, Assay for Ribozyme target site; James A. McSwiggen, 435/6, 91.2; 536/25.1 [IMAGE AVAILABLE]

13. 5,496,698, Mar. 5, 1996, Method of isolating ribozyme targets; Kenneth G. Draper, et al., 435/6, 91.31, 320.1; 514/44; 536/23.1, 23.2, 24.5 [IMAGE AVAILABLE]

14. 5,495,006, Feb. 27, 1996, Antiviral polynucleotide conjugates; Shane Climie, et al., 536/24.1; 435/5; 536/23.1 [IMAGE AVAILABLE]

15. 5,352,596, Oct. 4, 1994, Pseudorabies virus deletion mutants involving the EPO and LLT genes; Andrew K. Cheung, et al., 424/205.1, 229.1, 815; 435/235.1, 236, 456, 463, 948 [IMAGE AVAILABLE]

16. 5,334,498, Aug. 2, 1994, Herpes simplex virus 1 UL13 gene product: methods and compositions; Bernard Roizman, et al., 435/5, 183, 188, 194 [IMAGE AVAILABLE]

17. 5,004,810, Apr. 2, 1991, Antiviral oligomers; Kenneth G. Draper, 536/24.5, 23.72, 24.1 [IMAGE AVAILABLE]
=> s icp8
L6 11 ICP8
=> d 1-11

1. 5,807,978, Sep. 15, 1998, Immunogenic peptides of prostate specific antigen; William J. Kokolus, et al., 530/300; 424/184.1, 185.1, 277.1; 530/326, 327, 403 [IMAGE AVAILABLE]

2. 5,776,172, Jul. 7, 1998, Multichannel implantable cochlear stimulator; Joseph H. Schulman, et al., 607/56, 55, 57 [IMAGE AVAILABLE]

3. 5,763,178, Jun. 9, 1998, Oscillating signal amplifier for nucleic acid detection; Jack G. Chirikjian, et al., 435/6; 536/23.1, 24.3 [IMAGE AVAILABLE]

4. 5,728,379, Mar. 17, 1998, Tumor- or cell-specific herpes simplex virus replication; Robert L. Martuza, et al., 424/93.2; 435/320.1, 456 [IMAGE AVAILABLE]

5. 5,665,873, Sep. 9, 1997, Glucocorticoid response elements; Priscilla A. Schaffer, et al., 536/24.1, 23.1 [IMAGE AVAILABLE]

6. 5,616,461, Apr. 1, 1997, Assay for antiviral activity using complex of herpesvirus origin of replication and cellular protein; Priscilla A. Schaffer, et al., 435/6, 5, 32; 436/501 [IMAGE AVAILABLE]

7. 5,609,616, Mar. 11, 1997, Physician's testing system and method for testing implantable cochlear stimulator; Joseph H. Schulman, et al., 607/56 [IMAGE AVAILABLE]

8. 5,603,726, Feb. 18, 1997, Multichannel cochlear implant system including wearable speech processor; Joseph H. Schulman, et al., 607/57 [IMAGE AVAILABLE]

9. 5,569,307, Oct. 29, 1996, Implantable cochlear stimulator having backtelemetry handshake signal; Joseph H. Schulman, et al., 607/56, 55, 57, 60 [IMAGE AVAILABLE]

10. 5,531,774, Jul. 2, 1996, Multichannel implantable cochlear stimulator having programmable bipolar, monopolar or multipolar electrode configurations; Joseph H. Schulman, et al., 607/56, 55, 57 [IMAGE AVAILABLE]

11. 5,522,865, Jun. 4, 1996, Voltage/current control system for a human tissue stimulator; Joseph H. Schulman, et al., 607/56, 32, 55, 57, 60 [IMAGE AVAILABLE]
=> s virus
L7 20947 VIRUS
=> s l7(5a)l2
L8 479 L7(5A)L2
=> s l1 and l8
L9 289 L1 AND L8
=> s l1(p)l8
L10 73 L1(P)L8
=> s l10 not l4
L11 46 L10 NOT L4
=> d 1-46

1. 5,843,456, Dec. 1, 1998, Alvac poxvirus-rabies compositions and combination compositions and uses; Enzo Paoletti, et al., 424/199.1, 201.1, 202.1, 204.1, 205.1, 218.1, 224.1; 435/69.3, 235.1, 252.3, 320.1; 514/2; 530/350, 826 [IMAGE AVAILABLE]

2. 5,837,532, Nov. 17, 1998, Herpes simplex cirus type 1 mutant; Christopher Maurice Preston, et al., 435/320.1; 536/23.2, 23.72 [IMAGE AVAILABLE]

3. 5,837,261, Nov. 17, 1998, Viral vaccines; Stephen Charles Inglis, et al., 424/229.1, 231.1; 435/235.1, 236 [IMAGE AVAILABLE]

4. 5,811,243, Sep. 22, 1998, Methods and compositions for binding tau and MAP2c proteins; Warren J. Strittmatter, et al., 435/7.1; 530/350 [IMAGE AVAILABLE]

5. 5,801,235, Sep. 1, 1998, Oligonucleotides with anti-cytomegalovirus activity; Gregory S. Pari, 536/24.5; 435/6, 375; 536/24.3, 24.33 [IMAGE

AVAILABLE]

6. 5,750,396, May 12, 1998, Stable virus packaging cell lines; Yanping Yang, et al., 435/357, 320.1, 366; 536/23.72, 24.1 [IMAGE AVAILABLE]

7. 5,733,903, Mar. 31, 1998, Treatment of neoplastic tissue by water-soluble texaphyrine metal complexes; Jonathan L. Sessler, et al., 514/185; 534/11, 15, 16; 540/145, 465, 472 [IMAGE AVAILABLE]

8. 5,723,301, Mar. 3, 1998, Method to screen compounds that affect GAPDH binding to polyglutamine; James R. Burke, et al., 435/7.1 [IMAGE AVAILABLE]

9. 5,698,446, Dec. 16, 1997, Methods and compositions for inhibiting production of replication competent virus; Wolfgang M. Klump, et al., 435/350, 320.1, 366 [IMAGE AVAILABLE]

10. 5,698,431, Dec. 16, 1997, Herpes simplex virus mutant UL41NHB; David A. Leib, 435/236, 235.1, 948 [IMAGE AVAILABLE]

11. 5,665,362, Sep. 9, 1997, Viral vaccines; Stephen Charles Inglis, et al., 424/205.1, 229.1, 231.1 [IMAGE AVAILABLE]

12. 5,661,033, Aug. 26, 1997, Gene transfer using herpes virus vectors as a tool for neuroprotection; Dora Yuk-wai Ho, et al., 435/320.1, 235.1 [IMAGE AVAILABLE]

13. 5,599,923, Feb. 4, 1997, Texaphyrin metal complexes having improved functionalization; Jonathan L. Sessler, et al., 540/145, 465, 472 [IMAGE AVAILABLE]

14. 5,599,691, Feb. 4, 1997, Herpes simplex virus as a vector; Bernard Roizman, 435/69.1, 320.1, 463, 465 [IMAGE AVAILABLE]

15. 5,569,759, Oct. 29, 1996, Water soluble texaphyrin metal complex preparation; Jonathan L. Sessler, et al., 540/472; 424/9.3; 534/11, 15, 16; 540/145, 465, 474; 548/302.7 [IMAGE AVAILABLE]

16. 5,532,124, Jul. 2, 1996, Genetically engineered bacteria to identify and produce medically important agents; Timothy M. Block, et al., 435/5, 6, 23, 34, 68.1, 69.1, 69.2, 184, 244, 252.3, 974 [IMAGE AVAILABLE]

17. 5,504,205, Apr. 2, 1996, Reduced sp.sup.3 texaphyrins; Jonathan L. Sessler, et al., 540/474, 145, 472 [IMAGE AVAILABLE]

18. 5,475,104, Dec. 12, 1995, Water soluble texaphyrin metal complexes for enhancing relaxivity; Jonathan L. Sessler, et al., 540/472; 534/11, 15; 536/27.1; 540/145, 465, 474 [IMAGE AVAILABLE]

19. 5,466,714, Nov. 14, 1995, Spermicidal and cytocidal fatty acid compositions; Charles E. Isaacs, et al., 514/558, 546, 549, 552, 560 [IMAGE AVAILABLE]

20. 5,451,576, Sep. 19, 1995, Tumor imaging and treatment by water soluble texaphyrin metal complexes; Jonathan L. Sessler, et al., 514/185; 534/11, 15; 540/145, 465, 472 [IMAGE AVAILABLE]

21. 5,449,765, Sep. 12, 1995, DNA encoding amino acids 590-710 of glycoprotein gII of pseudorabies virus; Christa S. Schreurs, et al., 536/23.4; 424/186.1, 229.1; 435/69.3, 69.7, 252.3; 536/23.72 [IMAGE AVAILABLE]

22. 5,441,936, Aug. 15, 1995, Antiviral peptides; Richard A. Houghten, et al., 514/16; 530/329 [IMAGE AVAILABLE]

23. 5,439,570, Aug. 8, 1995, Water soluble texaphyrin metal complexes for singlet oxygen production; Jonathan L. Sessler, et al., 204/157.15, 157.5; 604/4 [IMAGE AVAILABLE]

24. 5,434,182, Jul. 18, 1995, Antibacterial fatty acid compositions; Charles E. Isaacs, et al., 514/546, 547, 558 [IMAGE AVAILABLE]

25. 5,432,171, Jul. 11, 1995, Water soluble texaphyrin metal complexes for viral deactivation; Jonathan L. Sessler, et al., 514/185; 534/11, 15; 540/472; 604/4, 5, 6 [IMAGE AVAILABLE]

26. 5,328,688, Jul. 12, 1994, Recombinant herpes simplex viruses vaccines and methods; Bernard Roizman, 424/205.1, 231.1; 435/69.1, 235.1; 530/350; 536/23.72 [IMAGE AVAILABLE]

27. 5,288,641, Feb. 22, 1994, Herpes Simplex virus as a vector; Bernard Roizman, 435/320.1, 6, 69.1, 476 [IMAGE AVAILABLE]

28. 5,252,720, Oct. 12, 1993, Metal complexes of water soluble texaphyrins; Jonathan L. Sessler, et al., 534/11, 15, 16; 536/17.1, 17.2, 17.4; 540/145, 465, 472; 548/557; 564/347 [IMAGE AVAILABLE]

29. 5,240,703, Aug. 31, 1993, Attenuated, genetically-engineered pseudorabies virus S-PRV-155 and uses thereof; Mark D. Cochran, 424/205.1, 229.1, 815; 435/235.1 [IMAGE AVAILABLE]

30. 5,196,516, Mar. 23, 1993, Pseudorabies virus vaccine; Christa S. Schreurs, et al., 530/395; 424/229.1; 530/350, 806 [IMAGE AVAILABLE]

31. 5,068,192, Nov. 26, 1991, Attenuated pseudorabies virus which includes foreign DNA encoding an amino acid sequence; Mark D. Cochran, et al., 435/235.1 [IMAGE AVAILABLE]

32. 5,041,078, Aug. 20, 1991, Photodynamic viral deactivation with sapphyrins; J. Lester Matthews, et al., 604/4; 540/145 [IMAGE AVAILABLE]

33. 5,037,742, Aug. 6, 1991, Pseudorabies virus recombinants and their use in the production of proteins; Lynn W. Enquist, et al., 435/69.1, 69.3, 235.1, 320.1, 456 [IMAGE AVAILABLE]

34. 5,004,693, Apr. 2, 1991, Pseudorabies virus recombinants and their use in the production of proteins; Lynn W. Enquist, et al., 435/235.1, 69.1, 70.1, 320.1 [IMAGE AVAILABLE]

35. 4,992,051, Feb. 12, 1991, Infectious bovine rhinotracheitis virus mutants, methods for the production of same and methods for the use of same; Malon Kit, et al., 435/235.1, 320.1 [IMAGE AVAILABLE]

36. 4,891,315, Jan. 2, 1990, Production of herpes simplex viral porteins; Roger J. Watson, et al., 435/69.3, 243, 252.3, 252.33, 254.2, 320.1, 483, 488; 536/23.72 [IMAGE AVAILABLE]

37. 4,818,694, Apr. 4, 1989, Production of herpes simplex viral protein; Roger J. Watson, et al., 435/69.3, 243, 252.33, 320.1, 488; 536/23.72; 930/224 [IMAGE AVAILABLE]

38. 4,808,716, Feb. 28, 1989, 9-(phosponylmethoxyalkyl) adenines, the method of preparation and utilization thereof; Antonin Holy, et al., 544/244, 277 [IMAGE AVAILABLE]

39. 4,771,041, Sep. 13, 1988, Method for combating virus infection; Bertil F. H. Eriksson, et al., 514/120; 987/161 [IMAGE AVAILABLE]

40. 4,665,062, May 12, 1987, Method for combating virus infection; Bertil F. H. Eriksson, et al., 514/120; 987/161 [IMAGE AVAILABLE]

41. 4,609,548, Sep. 2, 1986, Vaccines for pseudorabies disease and methods for use of same; Malon Kit, et al., 424/205.1, 229.1, 822; 435/235.1, 236 [IMAGE AVAILABLE]

42. 4,514,497, Apr. 30, 1985, Modified live pseudorabies viruses; Malon Kit, et al., 435/235.1; 424/205.1, 229.1, 822; 435/236; 536/23.72 [IMAGE AVAILABLE]

43. 4,372,894, Feb. 8, 1983, Phosphonoformic acid esters; Ake J. E. Helgstrand, et al., 558/181; 544/110; 987/153, 161 [IMAGE AVAILABLE]

44. 4,339,445, Jul. 13, 1982, Method for combating virus infection; Bertil F. H. Eriksson, et al., 514/120; 987/161 [IMAGE AVAILABLE]

45. 4,225,582, Sep. 30, 1980, Vaccine for equine rhinopneumonitis; Robert A. Crandell, 424/229.1, 820 [IMAGE AVAILABLE]

46. 4,215,113, Jul. 29, 1980, Method for combating virus infections; Bertil F. H. Eriksson, et al., 514/120; 987/161 [IMAGE AVAILABLE]

```
=> d his

     (FILE 'USPAT' ENTERED AT 12:00:49 ON 03 DEC 1998)
L1       6274 S HERPES?
L2     313708 S ESSENTIAL
L3        265 S L1(P)L2
L4         55 S L1(5A)L2
L5         17 S ICP27
L6         11 S ICP8
L7      20947 S VIRUS
L8        479 S L7(5A)L2
L9        289 S L1 AND L8
L10        73 S L1(P)L8
L11        46 S L10 NOT L4
=> log hold
 SESSION WILL BE HELD FOR 30 MINUTES
U.S. Patent & Trademark Office SESSION SUSPENDED AT 12:29:22 ON 03 DEC 199
```

```
FILE 'USPAT' ENTERED AT 13:41:06 ON 05 OCT 1998
 ********************************
 *        WELCOME TO THE        *
 *     U.S. PATENT TEXT FILE    *
 ********************************
=> s inglis, ?/in
L1        64 INGLIS, ?/IN
=> s mosher, m?/xa,xp
          83 MOSHER, M?/XA
         169 MOSHER, M?/XP
L2       252 MOSHER, M?/XA,XP
=> s l1 and l2
L3         1 L1 AND L2
=> d
```

1. 5,665,362, Sep. 9, 1997, Viral vaccines; **Stephen Charles Inglis**, et al., 424/205.1, 229.1, 231.1 [IMAGE AVAILABLE]

```
=> s pseudorabies
L4       416 PSEUDORABIES
=> d his

     (FILE 'USPAT' ENTERED AT 13:41:06 ON 05 OCT 1998)
L1        64 S INGLIS, ?/IN
L2       252 S MOSHER, M?/XA,XP
L3         1 S L1 AND L2
L4       416 S PSEUDORABIES
=> s l2 and l4
L5        11 L2 AND L4
=> d 1-11
```

1. 5,807,557, Sep. 15, 1998, Soluble herpesvirus glycoprotein complex; Gary Dubin, 424/231.1; 435/69.3, 235.1, 325, 356 [IMAGE AVAILABLE]

2. 5,756,102, May 26, 1998, Poxvirus-canine distemper virus (CDV) recombinants and compositions and methods employing the recombinants; Enzo Paoletti, et al., 424/199.1, 213.1, 232.1; 435/69.3, 235.1, 320.1 [IMAGE AVAILABLE]

3. 5,738,854, Apr. 14, 1998, **Pseudorabies** virus vaccine; Thomas Christoph Mettenleiter, 424/205.1, 199.1, 229.1; 435/235.1, 236, 252.3, 320.1, 325, 463; 536/23.72 [IMAGE AVAILABLE]

4. 5,707,629, Jan. 13, 1998, Immunogenic composition against equine herpesvirus type 1; Dennis J. O'Callaghan, 424/186.1, 229.1; 530/324, 325, 326, 350; 930/220 [IMAGE AVAILABLE]

5. 5,695,765, Dec. 9, 1997, Mutant **pseudorabies** virus, and vaccines containing the same; Niels De Wind, et al., 424/199.1, 205.1, 229.1; 435/235.1, 236, 456, 477 [IMAGE AVAILABLE]

6. 5,686,076, Nov. 11, 1997, gD-negative bovine herpesvirus mutant, capable of direct cell-to-cell transmission; Gunther Keil, 424/199.1, 202.1, 229.1; 435/235.1; 536/23.72 [IMAGE AVAILABLE]

7. 5,674,709, Oct. 7, 1997, **Pseudorabies** virus protein; Erik Aivars Petrovskis, et al., 435/69.3, 252.3, 252.33, 254.11, 254.2, 325, 362, 419; 536/23.72 [IMAGE AVAILABLE]

8. 5,674,500, Oct. 7, 1997, Vaccines against Aujeszky's disease and other animal diseases containing **pseudorabies** virus mutants; Bernardus Petrus Hubertus Peeters, et al., 424/199.1, 229.1; 435/235.1, 320.1 [IMAGE AVAILABLE]

9. 5,651,972, Jul. 29, 1997, Use of recombinant swine poxvirus as a live vaccine vector; Richard W. Moyer, et al., 424/199.1, 93.2, 229.1, 232.1; 435/235.1, 320.1; 536/23.72 [IMAGE AVAILABLE]

10. 5,626,850, May 6, 1997, Non-shedding live herpesvirus vaccine; Nicolaas Visser, et al., 424/199.1, 93.21, 205.1, 229.1; 435/235.1 [IMAGE AVAILABLE]

11. 5,482,713, Jan. 9, 1996, Equine herpesvirus recombinant poxvirus vaccine; Enzo Paoletti, 424/199.1, 186.1, 229.1; 435/235.1 [IMAGE AVAILABLE]

```
=> log hold
 SESSION WILL BE HELD FOR 30 MINUTES
U.S. Patent & Trademark Office SESSION SUSPENDED AT 13:46:36 ON 05 OCT 199
8
```

```
? b 155
     05oct98 12:47:21 User208669 Session D1302.1
        $0.18   0.056 DialUnits File1
    $0.18  Estimated cost File1
        FTSNET   0.002 Hrs.
    $0.18  Estimated cost this search
    $0.18  Estimated total session cost   0.056 DialUnits

File 155:MEDLINE(R)  1966-1998/Nov W3
     (c) format only 1998 Dialog Corporation

    Set  Items  Description
    ---  -----  -----------
? s d310
    S1       1  D310
? s d301
    S2       3  D301
? t s2/7/1-3
```

2/7/1
DIALOG(R)File 155:MEDLINE(R)

09401474 98096336

Contributions of antibody and T cell subsets to protection elicited by immunization with a replication-defective mutant of herpes simplex virus type 1.

Morrison LA; Knipe DM
Department of Microbiology and Molecular Genetics, Harvard medical School, Boston, Massachusetts 02115, USA. morrisla@wpogate.slu.edu

Virology (UNITED STATES) Dec 22 1997, 239 (2) p315-26, ISSN 0042-6822
Journal Code: XEA
Contract/Grant No.: AI 20410, AI, NIAID
Languages: ENGLISH
Document type: JOURNAL ARTICLE

Replication-defective mutants of herpes simplex virus 1 (HSV-1) elicit immune responses in mice that reduce acute and latent infection after corneal challenge and are protective against development of disease. To understand the basis for the protective immunity induced by this new form of immunization, we investigated the contribution of various components of the immune response to protection against corneal infection and disease. Passive transfer of sera from mice immunized with the replication-defective mutant virus, d301, its parental HSV-1 strain, or uninfected cell lysate was used to examine the role of antibody. Despite posttransfer neutralizing antibody titers equivalent to those in control mice directly immunized with mutant virus, recipients of immune serum showed no reductions in primary replication in the eye, keratitis, or latent infection of the nervous system. However, immune serum protected mice from encephalitis and death. To examine the contribution of T cell subsets to protection, mice were immunized once with mutant virus and then were depleted in vivo of CD4+ or CD8+ T cells prior to corneal challenge. CD4 depletion resulted in higher titers of challenge virus in the eye at 3 to 4 days after challenge compared to control mice. Latent infection of the nervous system was increased by depletion of CD4+ T cells but not by depletion of CD8+ T cells keratitis developed only in a portion of the CD8+ T cell-depleted mice, suggesting that an immunopathologic potential of CD4+ T cells is held in check when immune CD8+ T cells are also present. Taken together, these data support a role for antibody induced by immunization with a replication-defective virus principally in protecting the central nervous system from disease, roles for CD4+ T cells in reducing primary replication in the eye and protecting against latent infection of the nervous system, and a role for CD8+ T cells in regulating the immunopathologic activity of CD4+ T cells.

2/7/2
DIALOG(R)File 155:MEDLINE(R)

08988828 97248397

Immunization with a replication-deficient mutant of herpes simplex virus type 1 (HSV-1) induces a CD8+ cytotoxic T-lymphocyte response and confers a level of protection comparable to that of wild-type HSV-1.

Brehm MA; Bonneau RH; Knipe DM; Tevethia SS
Department of Microbiology and Immunology, The Pennsylvania State University College of Medicine, Milton S. Hershey Medical Center, Hershey 17033, USA.

J Virol (UNITED STATES) May 1997, 71 (5) p3534-44, ISSN 0022-538X
Journal Code: KCV
Contract/Grant No.: AI34070, AI, NIAID; AI20410, AI, NIAID; 5T32CA60395, CA, NCI
Languages: ENGLISH
Document type: JOURNAL ARTICLE

Replication-deficient viruses provide an attractive alternative to conventional approaches used in the induction of antiviral immunity. We have quantitatively evaluated both the primary and memory cytotoxic T-lymphocyte (CTL) responses elicited by immunization with a replication-deficient mutant of herpes simplex virus type 1 (HSV-1). In addition, we have examined the potential role of these CTL in protection against HSV infection. Using bulk culture analysis and limiting-dilution analysis, we have shown that a replication-deficient virus, d301, generates a strong primary CTL response that is comparable to the response induced by the wild type-strain, KOS1.1. Furthermore, the CTL induced by d301 immunization recognized the immunodominant, H-2Kb-restricted, CTL recognition epitope gB498-505 to a level similar to that for CTL from KOS1.1-immunized mice. The memory CTL response evoked by d301 was strong and persistent, even though the frequencies of CTL were slightly lower than

the frequencies of CTL induced by KOS1.1. Adoptive transfer studies indicated that both the CD8+ and the CD4+ T-cell responses generated by immunization with d301 and KOS1.1 were able to limit the extent of a cutaneous HSV infection to comparable levels. Overall, these results indicate that viral replication is not necessary to elicit a potent and durable HSV-specific immune response and suggest that replication-deficient viruses may be effective in eliciting protection against viral pathogens.

2/7/3
DIALOG(R)File 155:MEDLINE(R)

08652170 96322749
Th1-associated immune responses to beta-galactosidase expressed by a replication-defective herpes simplex virus.
Brubaker JO; Thompson CM; Morrison LA; Knipe DM; Siber GR; Finberg RW
Laboratory of Infectious Diseases, Dana-Farber Cancer Institute, Boston, MA 02115, USA.
J Immunol (UNITED STATES) Aug 15 1996, 157 (4) p1598-604, ISSN 0022-1767 Journal Code: IFB
Contract/Grant No.: POAI-24010; POAI-AG37963, AG, NIA
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The immunogenic properties of a replication-defective herpes simplex virus HD-2, containing the Escherichia coli lacZ gene under control of the HSV ICP8 early gene promoter were studied in BALB/c mice. Experiments were designed to determine if the HD-2 virus preferentially stimulated either Th1- or Th2-associated immune responses to beta-galactosidase (beta gal). Sera from mice immunized i.p. or s.c. with virus HD-2, beta gal on aluminum phosphate adjuvant, or a control ICP8 deletion mutant, d301, were assayed for total and Ag-specific IgG1 and IgG2a Abs, beta gal-driven lymphocyte proliferation, and in vitro production of the cytokines IFN-gamma, IL-4, and IL-2. Viruses HD-2 and d301 preferentially stimulated the production of total serum IgG2a following two immunizations i.p. or a single immunization s.c., while only HD-2 virus stimulated in vivo production of beta gal-specific IgG2a serum Abs. In contrast, beta gal adsorbed on AlPO4 preferentially stimulated production of Ag-specific IgG1 serum Abs. The HD-2 virus also induced a potent cellular proliferative response to beta gal, which was still pronounced 5 wk after primary immunization. Cultured lymphocytes from HD-2-immunized mice produced IFN-gamma after 5 days in culture with soluble beta gal in an Ag- and dose-dependent fashion. These results demonstrate that replication-defective mutants of HSV can be used as vectors for eliciting Th1-associated immune responses to a heterologous Ag expressed from the viral genome.
? s n504r
S3 1 N504R
? t s3/7

3/7/1
DIALOG(R)File 155:MEDLINE(R)

06627430 90204683
Genetic evidence for two distinct transactivation functions of the herpes simplex virus alpha protein ICP27.
Rice SA; Knipe DM
Department of Microbiology and Molecular Genetics, Harvard Medical School, Boston, Massachusetts 02115.
J Virol (UNITED STATES) Apr 1990, 64 (4) p1704-15, ISSN 0022-538X
Journal Code: KCV
Contract/Grant No.: AI20530, AI, NIAID
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Infected-cell protein 27 (ICP27) is a herpes simplex virus type 1 alpha, or immediate-early, protein involved in the regulation of viral gene expression. To better understand the function(s) of ICP27 in infected cells, we have isolated and characterized viral recombinants containing defined alterations in the ICP27 gene. The mutant virus d27-1 contains a 1.6-kilobase deletion which removes the ICP27 gene promoter and most of the coding sequences, while n59R, n263R, n406R, and n504R are mutants containing nonsense mutations which encode ICP27 molecules truncated at their carboxyl termini. All five mutants were defective for lytic replication in Vero cells. Analysis of the mutant phenotypes suggests that ICP27 has the following regulatory effects during the viral infection: (i) stimulation of expression of gamma-1 genes, (ii) induction of expression of gamma-2 genes, (iii) down regulation of expression of alpha and beta genes late in infection, and (iv) stimulation of viral DNA replication. Cells infected with the mutant n504R expressed wild-type levels of gamma-1 proteins but appeared to be unable to efficiently express gamma-2 mRNAs or proteins. This result suggests that ICP27 mediates two distinct transactivation functions, one which stimulates gamma-1 gene expression and a second one required for gamma-2 gene induction. Analysis of the mutant n406R suggested that a truncated ICP27 polypeptide can interfere with the expression of many viral beta genes. Our results demonstrate that ICP27 has a variety of positive and negative effects on the expression of viral genes during infection.
? log hold
05oct98 12:48:54 User208669 Session D1302.2
$1.48 0.493 DialUnits File155
$0.00 3 Type(s) in Format 6
$0.80 4 Type(s) in Format 7
$0.80 7 Types
$2.28 Estimated cost File155
FTSNET 0.033 Hrs.
$2.28 Estimated cost this search
$2.46 Estimated total session cost 0.549 DialUnits

Logoff: level 98.09.24 D 12:48:54